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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/702,442	11/07/2003	Kon-Tsu Kin	KINK3004/EM	9705

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EXAMINER	
CHEN, KIN-CHAN	

ART UNIT	PAPER NUMBER
1765	

DATE MAILED: 12/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/702,442	KIN ET AL.	
	Examiner	Art Unit	
	Kin-Chan Chen	1765	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 November 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5 and 7-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5 and 7-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3, 5, and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Degendt et al. (US 2002/0011257 A1) in view of Muraoka et al. (US 6,696,228 B2) as evidenced by Kashiwase et al. (US 5,378,317).

In a method for treating a surface of a substrate, Degendt teaches that bubbles with a liquid and a gas may be formed on the surface of the substrate.

The gas bubbles may work to strip a substance from the surface of the substrate. The substance may be a photoresist or an organic contaminant on the surface of the wafer. See abstract; Fig. 8, [0092]-[0093]. Degendt teaches that the substrate may be immersed in the liquid contained in a bath as shown in Fig. 8, [0092]-[0093]. Degendt also teaches that the substrate may be not immersed in the liquid as shown in Fig. 3, [0086]-[0089]. Hence, it would have been obvious to one with ordinary skill in the art to use the combination thereof such that the substrate is only partially (e.g., bottom portions or outer edges of substrate) immersed in the liquid as instantly claimed because both of which have been used and be able to remove the resist and residues.

" It is prima facie obvious to use two compositions (two methods) each of which is taught by the prior art to be useful for the same purpose. " In re Kerkhoven 205 USPQ 1069 (CCPA 1980). In re Susi 169 USPQ 423, 426 (CCPA 1971). See also Ex parte Quadranti 25 USPQ 2d 1071 (BPAI 1992). The obviousness of applying two known process steps sequentially or simultaneously is clearly analogous to applying two known compositions.

"the nature of the problem to be solved" is the motivation to combine the references to arrive at the claimed invention because each reference was directed to the same problem of removing the resist and residues. In Ruiz v. A.B. Chance Co., 357 F.3d 1270, 69 USPQ2d 1686 (Fed. Cir. 2004); MPEP2143.01.

Since the substrate is only partially (e.g., bottom portions or outer edges of substrate) immersed in the liquid as described above, given that same etchant (e.g., ozone water and a gas mixture containing ozone) is applied to the same process, it is expected that the gas bubbles are allowed to ascend along the surface of the substrate such that the gas bubbles work to strip a substance from the surface of the substrate.

When the examiner has reason to believe that functional language asserted to be critical for establishing novelty in claimed subject matter may, in fact be an inherent characteristic of the prior art as discussed above, the burden of proof is shifted to the applicant to prove that the subject matter shown in the prior art does not possess the characteristics relied upon. Whether the rejection is based on "inherency" under 35 U.S.C. §102, or on "prima facie obviousness" under 35 U.S.C. §103, jointly or alternatively. In re Fitzgerald et al. 205 USPQ 594.

Unlike the claimed invention, Degendt does not disclose that a plurality of the substrates which are equidistantly arranged and are parallel to one anther. However, it is common in the art of wet processing of the substrates that a plurality of the substrates which are equidistantly arranged and are parallel to one anther during the multiple-wafer treatment. Muraoka et al. (US 6,696,228 B2; Fig. 1) is only relied on to show this well-known feature, see also Kashiwase et al. (US 5,378,317, Figures) in the record as evidence. Because it is a well-known feature and because it is disclosed by Muraoka, hence, it would have been obvious to one with ordinary skill in the art to incorporate said well-known feature in the process of Degendt in order to improve the productivity of the

wafer treatment. It is also noted that applicant did not traverse the aforementioned conventionality (e.g., well-known features, common knowledge), which have been stated in the previous office action (August 3, 2005).

The limitations of dependent claims 2, 3, 7, and 8 have been addressed above and rejected for the same reasons, supra.

As to claims 5 and 9, Degendt teaches the design for rotating treatment chamber [0077] may be applied in the process so as to rotate the substrates, see [0079] [0080]. Since the substrates, which are partially immersed in the liquid as described above, are rotated, it is expected that the outer edges of the substrates would be immersed in the liquid in rotation as instantly claimed.

Response to Arguments

3. Applicant's arguments filed November 3, 2005 have been fully considered but they are not persuasive.

Applicant has argued that the reference does not teach that the gas bubbles are allowed to ascend along the surface of the substrate such that the gas bubbles work to strip a substance from the surface of the substrate. It is not persuasive, As has been stated in the office action, since the substrate is only partially (e.g., bottom portions or outer edges of substrate) immersed in the liquid as described above, given that same etchant (e.g., ozone water and a gas mixture containing ozone) is applied to the same process, it is expected that the gas bubbles are allowed to ascend along the surface of

the substrate such that the gas bubbles work to strip a substance from the surface of the substrate. See also the cited case law above.

Applicant has argued that there is no motivation to combined two embodiments of Degendt. It is not persuasive. As stated in the office action, Degendt teaches that the substrate may be immersed in the liquid contained in a bath as shown in Fig. 8, [0092]-[0093]. Degendt also teaches that the substrate may be not immersed in the liquid as shown in Fig. 3, [0086]-[0089]. Hence, it would have been obvious to one with ordinary skill in the art to use the combination thereof such that the substrate is only partially (e.g., bottom portions or outer edges of substrate) immersed in the liquid as instantly claimed **because both of which have been used and be able to remove the resist and residues.** See also the case law cited above.

Conclusion

4. The prior art made of record (PTO-892, August 3, 2005) and not relied upon is considered pertinent to applicant's disclosure. Kashiwase et al. (US 5,378,317, Figures) show that a plurality of the substrates which are equidistantly arranged and are parallel to one anther during the multiple-wafer treatment in the wet processing of the substrates.

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kin-Chan Chen whose telephone number is (571) 272-1461. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you

have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

December 1, 2005

Kin-Chan Chen
Primary Examiner
Art Unit 1765